

EXHIBIT S72 TO DECLARATION OF  
STEPHEN G. SCHWARZ IN SUPPORT OF  
PLAINTIFFS' MOTION FOR CLASS  
CERTIFICATION

# SCF PFOA Program

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*Ruth Jamke*

R&D Review

April 29, 2003



**PERFORMANCE PLASTICS**

**Exhibit 346**

**Jamke**

9/11/2019

Reporter: Kimberly A. Smith  
Veritext Legal Solutions

Ex. 296 (color)

## **EPA Probes Widely Used Chemical**

Compound May Pose Health Risk to Women and Young Girls

*By Eric Pianin*

Washington Post Staff Writer

Tuesday, April 15, 2003; Page A05

## **Out of the frying pan, into a fire**

By Elizabeth Weise, USA TODAY

Posted 4/23/2003

## **Research Group Alleges Dupont Withheld Toxic Finding**

WASHINGTON, DC, April 14, 2003 (ENS) - The Environmental Working Group (EWG) alleges that the DuPont chemical company violated federal law by withholding from the government information on the health risks from perfluorochemicals (PFCs) used to make Teflon.

  
SAINT-GOBAIN  
PERFORMANCE PLASTICS



# Agenda

1. **PFOA – What is it?**
2. Supply Chain and Players
3. Timeline
4. What have we been doing?
5. Where are we going?
6. EHR Foundation Report
7. Conclusions



# PFOA

- What is it?
  - A perfluoro-surfactant used in the dispersion polymerization process
    - Added to the reactor to keep the polymer particles dispersed.
    - Not used in the production of granular PTFE
    - No viable substitute for aqueous polymerization
    - Environmentally persistent
    - Not naturally occurring

## PFOA Nomenclature

- C-8 is an abbreviation for a class of materials
- PFOS – Perfluorooctyl Sulfonic Acid
  - $\text{CF}_3(\text{CF}_2)_7\text{SO}_3\text{H}$
  - Persistent, Bio-accumulates, Toxic (PBT)
- PFOA – Perfluorooctanoic acid
  - $\text{CF}_3(\text{CF}_2)_6\text{COOH}$
  - Not a PBT – only “P”
- APFO – Ammonium perfluorooctanoate
  - $\text{CF}_3(\text{CF}_2)_6\text{COONH}_4$
  - Not a PBT – only “P”

**Significant difference among C-8 based compounds**



## PFOA

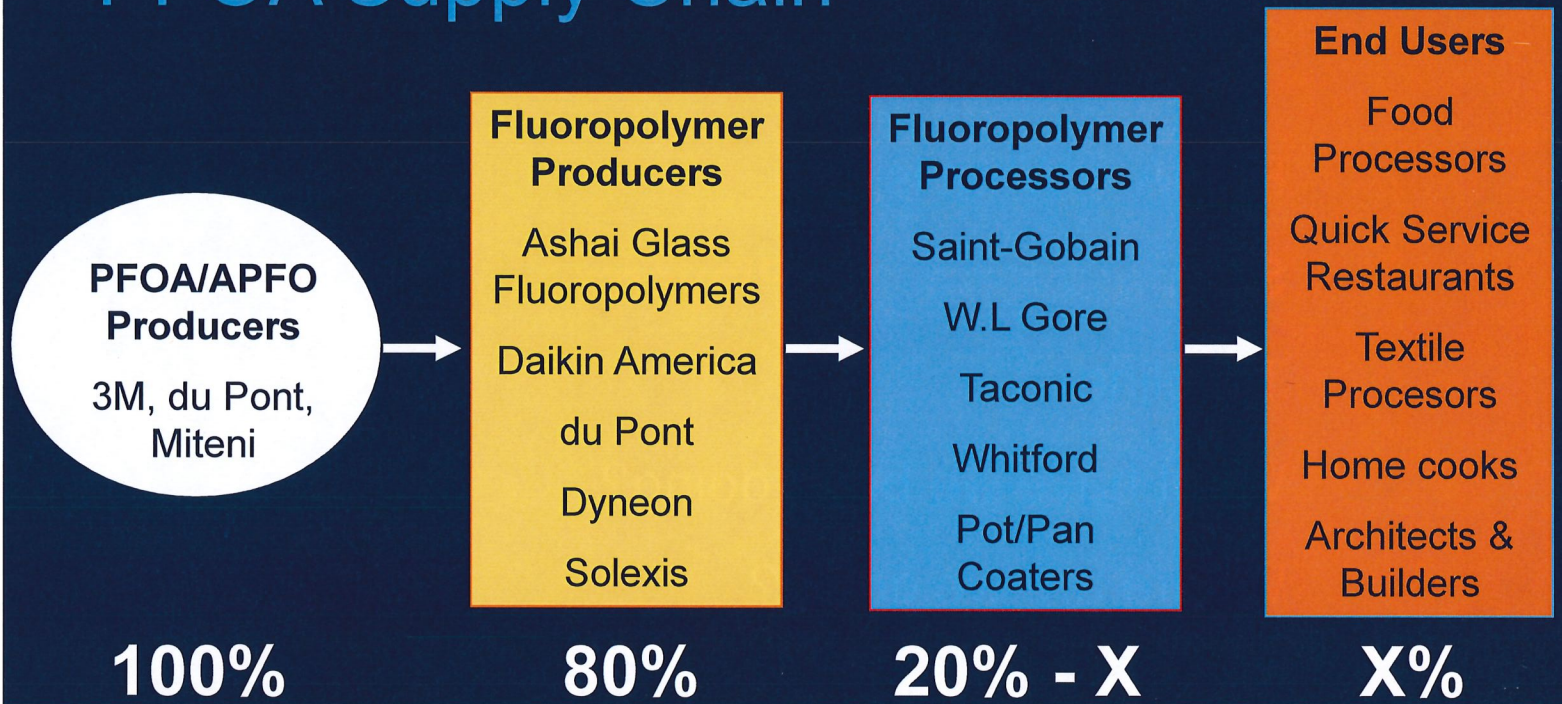
- Products that may contain low levels of PFOA or APFO
  - PTFE, PFA, FEP, PVdF and other F.P. dispersions (400-2500 ppm)
  - PTFE fine powder or coagulated dispersion (0.09-0.9 ppm)
  - FEP, PFA and other melt processable pellets (<0.01 ppm)
  - Fluoro and perfluoroelastomers (exact level unknown)

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2. **Supply Chain and Players**
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## PFOA Supply Chain



**Processor and End User Mass Balance Incomplete**



# PFOA

## Industrial Organizations

- Society of Plastics Industries (SPI)
  - Fluoropolymer Division (FPD)
  - Fluoropolymer Manufactures Group (FMG)
- Association of Plastics Manufacturers in Europe (APME)
- Telomer Research Program (TRP)

## Regulatory

- Environmental Protection Agency (EPA)
- Office of Pollution Prevention & Toxics (OPPT)



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## PFOA Timeline

- **ca. 1950** – 3M begins production of C-8 based products
- **1999** – EPA begins investigation PFOS
  - persistent
  - unexpectedly toxic
  - bioaccumulative
  - low concentrations in the blood of the general population
- **May 2000** – 3M announces it will cease producing C-8 based products in 2002.

ENVIRONMENTAL PROTECTION AGENCY [OPPT—2003—0012; FRL—7303—8] *Perfluorooctanoic Acid (PFOA), Fluorinated Telomers; Request for Comment, Solicitation of Interested Parties for Enforceable Consent Agreement Development, and Notice of Public Meeting*





## PFOA Timeline

**June 2000** – EPA expanded its investigation of PFOS to encompass other fluorochemicals

- include PFOA
- Determine **IF** PFOA is similar to PFOS
- 3M found PFOA in human blood during the studies on PFOS (5-6 ppb v. 50-60 ppb)

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## PFOA Timeline

**November 2001** – EPA region 3 issues a consent order for du Pont Washington Works to reduce air and water emissions of APFO by 50%.

- RfC for Air 1  $\mu\text{g}/\text{m}^3$
- RfD for orally 4  $\mu\text{g}/\text{kg}\text{-day}$
- Water 14 ppb (drinking water)
- Aquatic 1.4-1.6 ppm
- 240 ppm for soil

"The RfD (Reference Dose) or RfC(Reference Concentration) is defined by EPA as an estimate (with uncertainty spanning perhaps an order of magnitude or greater) of a daily exposure level for the human population, including sensitive subpopulations, that is likely to be without an appreciable risk of deleterious effects during a lifetime.



## PFOA Timeline

- **2000** – SPI/FMG begin work on producer mass balance
- **2001** SPI/FMG volunteer processor mass balance
  - No meaningful results - lack of industry participation
- **2000 – 2003** FMG meets with EPA on a regular basis
  - EPA is pleased with the proactive response from industry
- **2002** – DuPont completes \$45MM APFO plant



## PFOA Timeline

- **September 2002** – EPA priority review on PFOA
  - Issued interim revised hazard assessment
  - PFOA *might* meet the criteria for TSCA section 4(f)
    - developmental toxicity data
    - animal carcinogenicity data
    - blood monitoring data
  - **“... there remain substantial uncertainties associated with the preliminary risk assessment.”**

ENVIRONMENTAL PROTECTION AGENCY [OPPT—2003—0012; FRL—7303—8] *Perfluorooctanoic Acid (PFOA), Fluorinated Telomers; Request for Comment, Solicitation of Interested Parties for Enforceable Consent Agreement Development, and Notice of Public Meeting*



## PFOA Timeline

- **March 2003** – The Environmental Working Group (EWG), an environmental action group, leaked information from internal EPA documents
  - Picked up by the media
  - Teflon® and Gore-Tex® specifically mentioned
  - Incomplete or inaccurate information misleading to the general public



## PFOA Timeline

- **March 2003** – The FMG, TRP and 3M submit letters of intent to the EPA regarding C-8 based materials
  - 50% reduction in emissions by 2006
  - Mass balance for processors
- **April 2003** – The EPA begins the process to develop consent orders to investigate and regulate PFOA.
  - No 4f review required at this time
  - **“... there remains considerable scientific uncertainty regarding potential risks.”**

ENVIRONMENTAL PROTECTION AGENCY [OPPT—2003—0012; FRL—7303—8] *Perfluorooctanoic Acid (PFOA), Fluorinated Telomers; Request for Comment, Solicitation of Interested Parties for Enforceable Consent Agreement Development, and Notice of Public Meeting*



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# PFOA

## Information Gathering

- W.L. Gore
- Dispersion Suppliers
  - SPI Representatives
- Internal
  - Health Safety and Environmental (HSE)
  - Communications
  - Legal

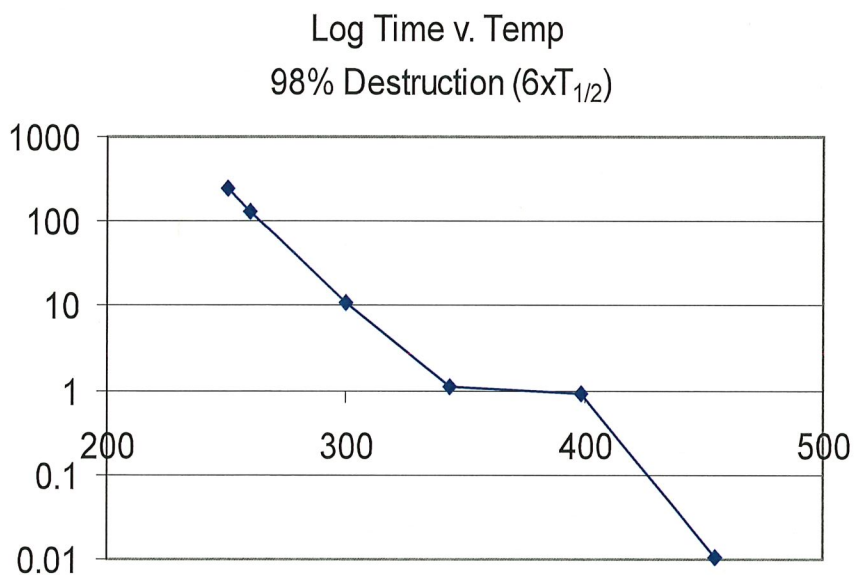


# PFOA

## Meeting W.L. Gore

- Advanced understanding of APFO
  - Consumer and medical applications
  - 3 years of work with HSE, Engineering and R&D involvement
- Environmental
  - Mass balance
  - Stack testing protocol
  - Pollution controls
    - Water – filtration
    - Air – thermal oxidation

# PFOA Thermal Data



T, °F	T, °C	k, (sec <sup>-1</sup> )	6 x t <sub>1/2</sub> (sec)
482	250	0.0164	253.4
500	260	0.0321	129.5
572	300	0.374	11.1
650	343	3.74	1.11
750	399	46.9	0.89
850	455	400.9	0.0104

Data supplied by DuPont from Thermolysis of C8 Fluorosurfactant, Oct 19, 1998.



# PFOA

## Meeting W.L. Gore

- Destruction of the PFOA in the stack is dependent upon
  - Air flow (residence time)
  - Gore Installed oxidizer
    - \$2MM capital investment
    - \$200K operating budget
    - Severe HF corrosion in 3 years
- Thermal profile in SCF processes allow product to see 18-90 seconds above 340°C.

# PFOA

## Meeting W.L. Gore

- Industrial Hygiene
  - Personnel and area monitoring
  - Biological monitoring
  - Material Handling
- Collaboration at SPI
  - Consistent testing protocols
  - Consistent communication



# PFOA

## Suppliers

- DuPont
  - Lead supplier in technical support
  - Developed Mass Balance Process Map
  - FMG and EPA information meetings
  - Analytical support for IH and Mass Balance testing
- Daikin and AGFP
  - Quarterly review meetings with technical staff
  - Second source for information

# PFOA

## Internal

- HSE
  - Henry Jones – Branche, Ed Canning - FFF , Jeff Sawyer - Merrimack
  - Mass balance planning
  - Finished product test program
  - Industrial Hygiene program
- Communication
  - Bill Seiberlich and Susan Lindsey – Delegation
  - Internal communication plan
  - External communication plan



# Agenda

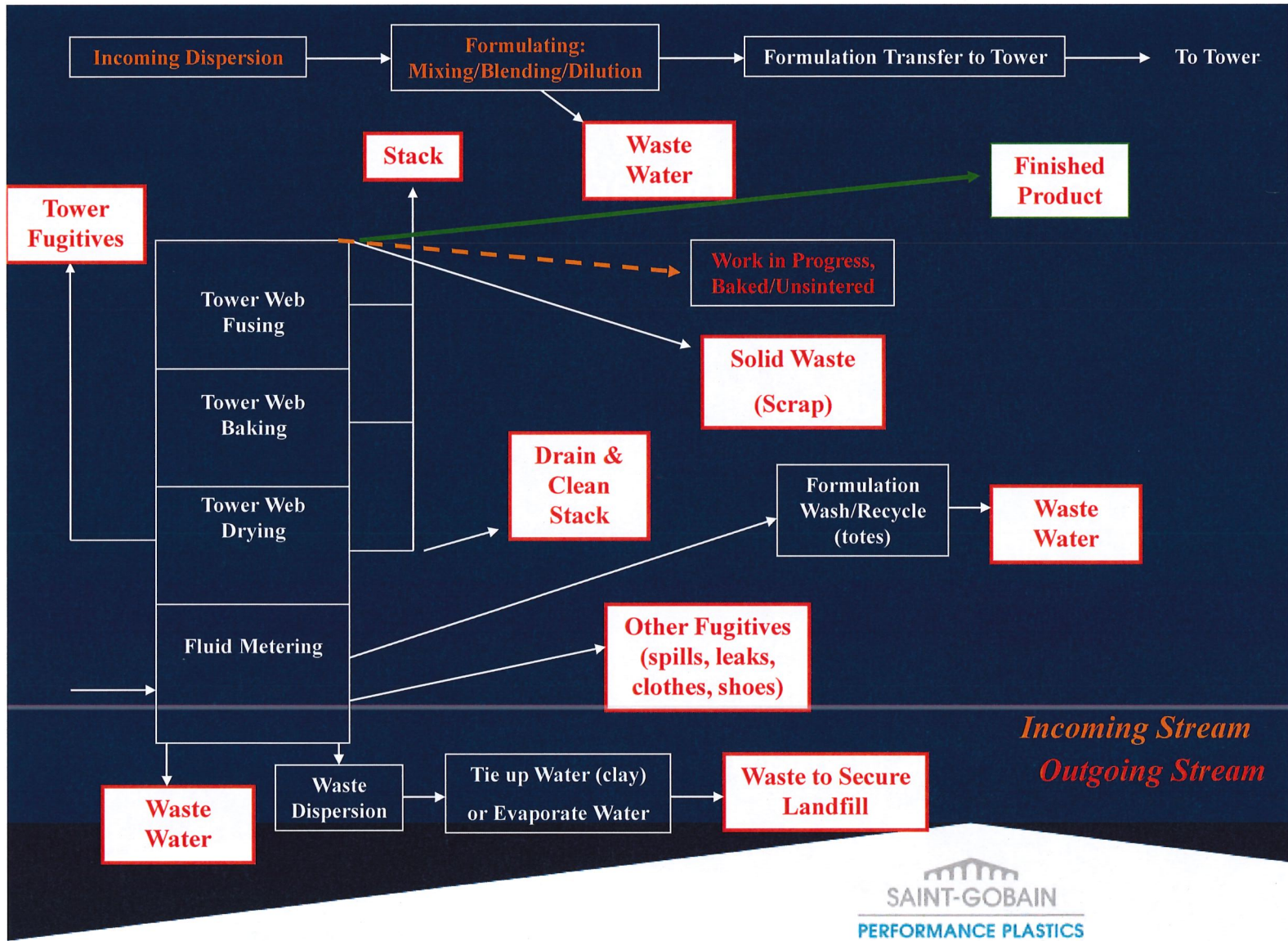
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## PFOA Mass Balance

Where does it come from and where does it go?

- Incoming material testing/certification
- Stack testing
- Fence-line modeling
- Waste-stream testing
  - Air
  - Water
  - Solid
- How much is thermally destroyed?





# PFOA Mass Balance

## Analytical Issues

- No standard methodology for measurement
  - Derivatization (esterification) and analysis by GC for low ppm
  - Extraction or direct sample
    - PFOA/APFO soluble in H<sub>2</sub>O and organic solvents
    - LC (low ppm)
    - LC/MS (ppb)
    - LC/MS/MS (ppt)



# PFOA Mass Balance

## Analytical Issues

- FMG working with establish methodology
- Lack of consensus among industry groups
- Detection limits have decreased from ppm to ppt
- No regulatory limits, just recommended limits
  - RfC for Air 1  $\mu\text{g}/\text{m}^3$
  - RfD for orally 4  $\mu\text{g}/\text{kg-day}$
  - Water 14 ppb (drinking water)
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# PFOA Mass Balance

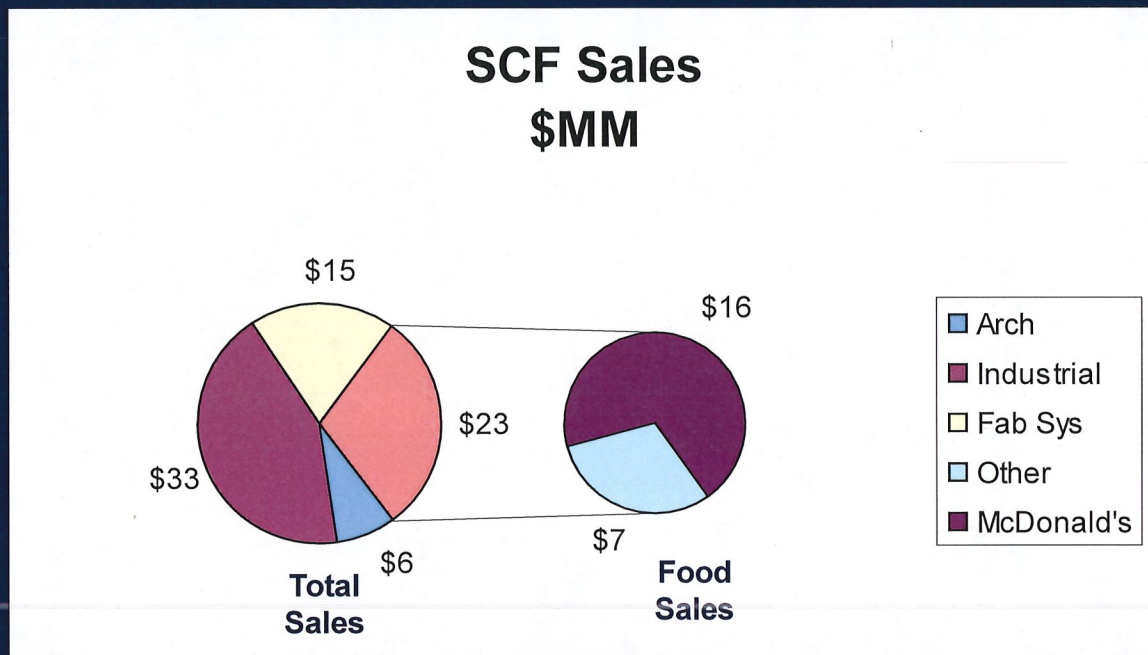
## Finished Product Testing

- Food Processing Products Most Critical
  - Grill Sheets
  - Belt Grills
  - Toaster Sheets
- Cost for first round testing \$38K
- Customer requests for information
  - McDonald's
  - Antunes

**Testing and Regulatory Issues Critical to Food Processing**



## PFOA Mass Balance



**Food Sales 30% of Total SCF**

## PFOA Industrial Hygiene

- Air monitoring
  - Personnel monitoring at  $2\mu\text{g}/\text{m}^3$  (TWA) v. recommended ACGIH TLV  $10\mu\text{g}/\text{m}^3$  (TWA)
- PPE
  - Implementing new PPE guidelines contained in the *"Guide to the Safe Handling of Fluoropolymer Resins, Third Edition"* published by the SPI

**Meet or Exceed Recommended Values**



## PFOA External Communication

- All external communication being handled through Bill Seiberlich and Susan Lindsay at the Delegation Level.
- A communication plan has been developed for
  - Customers
  - Communities
  - Media

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# PFOA

## Environmental Health Research Foundation

- Report requested by SPI
- Issued March 5, 2003
- Based on
  - APME and SPI document (Butenhoff et al., 2002) provided to EPA
  - November 4, 2002 EPA Draft Hazard Assessment (EPA, 2002)
  - the over 1200 reports provided to EPA as part of Administrative Record 226

# PFOA

## Environmental Health Research Foundation

- Employee Studies
  - 1993-1998 of fluorochemical plant workers
  - “There is no evidence to suggest increases in reproductive and developmental effects...”
- Laboratory Animal Studies
  - “...laboratory animal studies provide no evidence of adverse reproductive or developmental health effects at current general population exposure levels.”



# PFOA

## Environmental Health Research Foundation

- Tumorigenicity Studies
  - No evidence of a relationship between PFOA exposure and the incidence of cancer in the Prostate, Liver, Testes, Pancreas, or Breast

**No Evidence of Adverse Human Health Effects**

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# SCF PFOA Action Plan

## 1. Employee Communication

- Ongoing technical assistance to HR and HSE

## 2. Mass Balance

- Stack Testing – August, 2003
  - Screening study
    - 3 towers
    - \$20K for sampling, \$20K for analysis
  - Testing lab to be identified
- Finished Product Testing
  - Initial results 6-9 weeks
  - Follow-up testing dependent upon regulation

## SCF PFOA Action Plan

### 3. Industrial Hygiene

- Personnel Monitoring Test Protocol

### 4. External Communication

- What if it is not non-detect?

### 5. New Product and Process Development

- Dispersion Technology
  - Dyneon, Solaxis “low” APFO dispersions
    - IP issues to be resolved before sampling
- Process Development
  - Maximize destruction in oven



# Questions?



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